PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : C12Q 1/68

A2

(11) International Publication Number: WO 96/17956

(43) International Publication Date: 13 June 1996 (13.06.96)

(21) International Application Number: PCT/US95/15944

(22) International Filing Date: 7 December 1995 (07.12.95)

(30) Priority Data:
08/353,476 9 December 1994 (09.12.94) US

(71) Applicant *(for all designated States except US)*: THE GENE POOL, INC. [US/US]; Suite 392, 300 Queen Anne Avenue North, Seattle, WA 98109-4599 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: WEININGER, Susan [US/US]; Suite 392, 300 Queen Anne Avenue North, Seattle, WA 98109-4599 (US). WEININGER, Arthur, M. [US/US]; Suite 392, 300 Queen Anne Avenue North, Seattle, WA 98109-4599 (US).

(74) Agents: BENCEN, Gerard, H. et al.; Saliwanchik & Saliwanchik, Suite A-1, 2421 N.W. 41st Street, Gainesville, FL 32606-6669 (US).

(81) Designated States: AL, AM, AU, BB, BG, BR, BY, CA, CN, CZ, EE, FI, GE, HU, IS, JP, KG, KP, KR, KZ, LK, LR, LT, LV, MD, MG, MK, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TJ, TM, TT, UA, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, LS, MW, SD, SZ, UG).

**Published**
*Without international search report and to be republished upon receipt of that report.*

(54) Title: METHOD OF DETECTION OF NUCLEIC ACIDS WITH A SPECIFIC SEQUENCE COMPOSITION

(57) Abstract

This invention is a novel method for detecting and localizing specific nucleic acid sequences in a sample with a high degree of sensitivity and specificity. The method and novel compositions used in the method involve the use of Probe Nucleic Acids, the production of nucleic acid binding regions and the use of nucleic acid Target Binding Assemblies to detect and localize specific Target Nucleic Acids. The detection and localization of the Target Nucleic Acid is accomplished even in the presence of nucleic acids which have similar sequences. The method provides for a high degree of amplification of the signal produced by each specific binding event. In particular, methods and compositions are presented for the detection of HIV and HPV nucleic acid in samples. These methods and compositions find use in diagnosis of disease, genetic monitoring, forensics, and analysis of nucleic acid mixtures. Some of the novel compositions used in the detection method are useful in preventing or treating pathogenic conditions.